岡山大学経済学会雑誌36(１)，2004，１～11

《論　　説》

On Morishima's Postulate and Mark-up Principle

Shosuke Takemura

Introduction

The patterns of deciding price are dependent on the dominant type of price mechanism. I want to call it Morishima's postulate. We can consider the relative difference between the manufacturing sector and the agricultural sector in deciding the market price. Especially I am interested in the institutions and features of deciding and changing price in using the mark-up principle under the monopolistic pressure. Concretely those are realized under the fixed, flexible and mixed price economies. At first I'll test Morishima's Postulate through use of the recent data. The mark-up principle is closely related to the fixed price economy. We can see that it is essential to depict a dynamic process of the firm's production and selling by driving competitive power in the very circumstances we call rivalry. A prominent economist Schumpeter used to tell that the clever firm is able to use his wisdom thoughtfully and effectively by creating, processing and storing his own internal skill including the pricing method and innovational knowledge in R&D.

Three Types –Fixed, Flexible and Mixed–

Hicks at first distinguished the equilibrium with and without the storable stock as the nature of goods. He said the former is apt to be the fixed price type and the latter is the flexible price type. Though he was interested in knowing how to form the temporary equilibrium during the time when market demand is changing, his disputation is not always correct[1]. We can consider the relative difference between the manufacturing sector and the agricultural sector in deciding the market price. Generally speaking the goods in the manufacturing sector are inclined to be storable and those in the agricultural sector are not. Depending on the theoretical frame the price of the manufacturing output keeps given unless the market conditions change. Conversely that of the latter keeps variable whether those conditions change or not. From the point of the nature of goods we can say that the price of the manufacturing output is fixed and that of the agricultural output is flexible. Which should we adopt as the vital postulate?

1. Hicks introduced the meaningful distinction between fixed price and flexible price. The fixed price does not always mean that it keeps unchangeable at all.

Table 1 Ratio of agricultural sector's output to manufacturing sector's output

	United States	Japan	France
1975	19.7	14.4	16.0*
1980	22.4	10.3	15.5
1985	18.0	8.6	15.6
1990	7.4	6.3	12.9
1995	6.1	5.5	12.3
2000	6.5	4.3	11.2
	Germany	United Kingdom	Italy
1975	9.0	11.7	17.4
1980	7.2	23.0	14.7
1985	6.9	28.0	13.0
1990	4.5	5.4	10.5
1995	4.0	5.7	10.8
2000	4.0	3.7	9.9
	Korea		
1975	–		
1980	–		
1985	–		
1990	19.7		
1995	14.3		
2000	11.1		

– : no data, * 1977

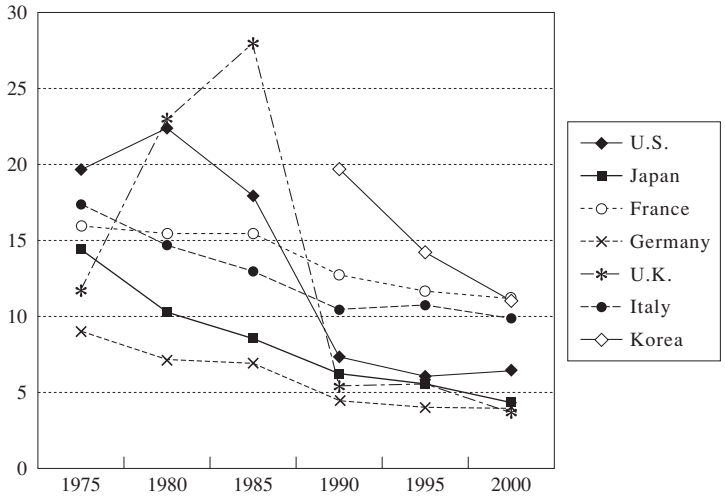
Source: OECD : National Accounts 1975-1987, 1980-1992 and National Accounts of OECD Countries 1990-2001

: Values calculated by author

Marshallian economists including Hicks used to suppose that it is the most efficient that the goods and services are traded in the perfectly competitive market. The other way Kaleckian economists did those goods and services are traded by way of the mark-up principle in the imperfectly competitive market. I would like to propose to call the former the flexible price economy and the latter the fixed price economy according to Morishima's distinction. In general the agricultural products are agreeable to the flexible price market, and the manufacturing products are to the fixed price one. In the real world the most countries live in the two-sided economy. An introduction of mark-up principle in deciding of the price of goods and services means the country needs to have not only the flexible economy but also fixed economy. I want to test Morishima's postulate through use of the recent data.

Table 1 shows the ratios of the agricultural sector's output to the manufacturing sector's output from 1975 to 2000 in several developed countries. The agricultural sector's output includes agriculture, hunting, forestry, fishing and mining. Manufacturing sector's output includes manufacturing, construction, electricity, gas and water. These figures are given in order to know the historical trend of the economic development. Three western countries except U.S. and U.K. are gradually decreasing from 1975 to 2000. Two asian countries are in the same way. Speaking of the price type Germany and Japan belong to the fixed one as the values are low. France, Italy and Korea are the flexible ones as the values are high. U.S and U.K. are the mixed ones as the values varied.

Figure 1



We can know that Japan and Germany are now typical fixed economies. Historically U.K. used to show a rather low ratio since the rise of well-known industrial revolution in 19th century[2]. U.S. and U.K. have higher ratios than other two countries in Europe. Generally speaking every developed economy has a common inclination to be fixed price economy during the years.

Figure 1 shows each line graph according to values in the table 1.

Schumpeter will like to call this economy 'rigid price economy'. In fact he has been very interested in the rigid price under monopolistic practices in depression, not in prosperity in his 'plausible capitalism'. His view brings us to think over mark-up principle again.

In table 2 the agricultural sector's employment includes agriculture, hunting, forestry, fishing and mining.

---

2. This table is based on an idea of Morishima (1984, p. 39). It seems like he was stimulated by the above Hicks' disputation.

Year	U.K.	Germany	France	Italy
1801	139			
1825–1835			200	
1841	65			
1860–1869		133		275
1872–1882			140	
1896–1900		46		214
1901	15			
1907	18		95	
1913		51		214
1919	16			181
1929	13	33		138
1939	13			103
1949	15	23	30	91
1959	10	15	23	59

-Ratio of agricultural output to manufacturing output (%)-

Source : Carlo M.Cipolla, *Fontana Economic History of Europe*

Table 2 Ratio of agricultural sector's employment to manufacturing sector's employment

	United States		Japan		France	
1975	(19.7)	20.0	(14.4)	44.3	(16.0*)	28.7*
1980	(22.4)	18.5	(10.3)	38.0	(15.5)	27.6
1985	(18.0)	17.2	(8.6)	33.5	(15.6)	27.1
1990	(7.4)	11.0	(6.3)	26.1	(12.9)	21.4
1995	(6.1)	13.2	(5.5)	22.5	(12.3)	20.3
2000	(6.5)	12.4	(4.3)	21.4	(11.2)	19.5
	Germany		United Kingdom		Italy	
1975	(9.0)	17.9	(11.7)	10.9	(17.4)	42.0
1980	(7.2)	14.8	(23.0)	11.2	(14.7)	37.8
1985	(6.9)	15.5	(28.0)	12.2	(13.0)	37.3
1990	(4.5)	11.0※	(5.4)	5.0	(10.5)	23.1
1995	(4.0)	9.1	(5.7)	5.3	(10.8)	19.5
2000	(4.0)	8.6	(3.7)	5.7	(9.9)	16.4
	Korea					
1975	–					
1980	–					
1985	–					
1990	(19.7)	50.5				
1995	(14.3)	37.3				
2000	(11.1)	38.7				

Values in parentheses : the same as Table 1
– : no data, *1977, ※1991
Source: OECD : National Accounts 1975-1987, 1980-1992 and National Accounts of OECD Countries 1990-2001
: Values calculated by author

Manufacturing sector's employment includes manufacturing, construction, electricity, gas and water. This table makes us remind that there are two types, namely, Asian type and Western type as the remark mentioned above. The former shows the larger difference between the output ratio and employment ratio. The latter shows the smaller one between the two ratios.

When Ao and Mo mean the agricultural sector's output and that of manufacturing sector and Ae and Me mean the agricultural sector's employment and that of manufacturing sector, we can see the following formula.

$Ao / Mo - Ae / Me < 0$ means $Av - Mv < 0$.

The reverse holds true. In this formula Av and Mv mean the productivity of the agricultural sector and that of manufacturing sector, respectirely.

We can see several fact-findings comparing to the two values in each entry in Table 2.

Saying as a trend, the ratio Ae / Me regarding employment is likely to decrease that of Ao / Mo regarding output. The values of each country are in variety. The productivities of Asian countries in the manufacturing sector Av are rather higher than those of Western countries Mv. Particularly in Japan the difference of the indicator $(Av - Mv)$ is the largest among all countries. United Kingdom shows that $(Av - Mv)$ is positive but

Table 3 Real output per capita in five countries-prices in dollars at 1985-

	United States	Japan	France
1973	14379	8539	10316
1992	17945	15105	13918
1992/1973*	1.2	1.8	1.4
	Germany	United Kingdom	
1973	10315	9609	
1992	14709	12724	
1992/1973*	1.4	1.3	

* : Ratio calculated by author

Source: Roberts Summers and Alan Heston, Penn World Tables, 1995 and Olivier Blanchard, Macroeconomics, P. 238, 1997.

2000. United States is also positive in 1980 and 1985. In Western countries these two show the development with distinguished features.

Table 3 shows the real output per capita in five countries and the ratio between 1973 and 1992. In this table Japan has the highest value and those of U.S. and U.K. are low. The other two Western countries have the middle values. We can see that there is a certain likeness between fact-findings in Table 2 and those of Table 3[3]. We need to notice this table is macroscopic and Table 2 is microscopic. It is fatal that the same fact-findings are derived from not macroscopic observations but from microscopic ones.

What comes to happen in rivalry?

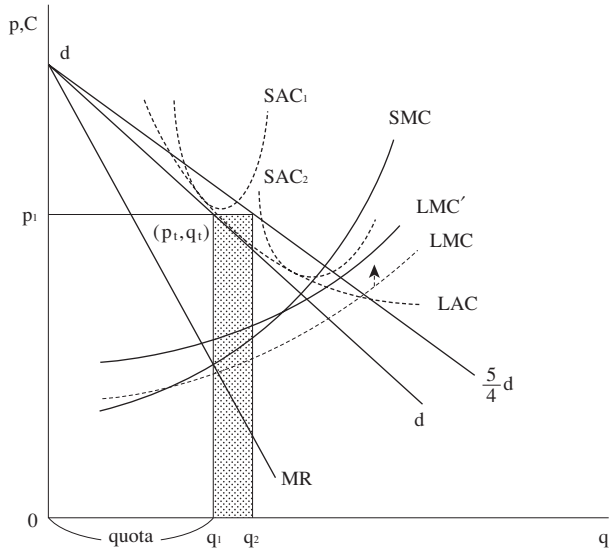
Schumpeter's statements are as follows : -under the conditions created by capitalist evolution, perfect and universal flexibility of prices might be depression further unstabilize the system, instead of stabilizing it as it no doubt would under the conditions envisaged by general theory. Again this is to a large extent recognized in those cases in which the economist is in sympathy with the interests immediately concerned, for instance in the case of labor and of agriculture ; in those cases he admits readily enough that what looks like rigidity may be no more than regulated adaptation[4]-. He is likely to suppose these situations of rigid price will be observable in the case of the formation of agricultural sector's output both in the of short-run and in long-run periods. He distinguishes the lower limit of competitive price from the upper one of monopoly price.

Now the new word 'rivalry' does not acquire its citizenship in a well-known standard economic theory yet. Though in rivalry every producer is able to sell differential output, he has many competitors in the same market place. I dare to adopt the concept of 'rivalry' in behalf of the familiar 'excessive competition'. They are equivalent to the peculiar industrial circumstances which Schumpeter himself has often picked up in his works. Many outstanding economists have given us some definitions of 'perfect competition' including three main

3. We are also able to research into the comparative methods by using not the countries' real outputs per capita but the real wages of those.

4. Schumpeter (1943), p.95.

Fig. 2



requirements, namely, innumerable participants, non-differential output and non-barrier against entry. ‘Oligopoly’ includes most of them. In rivalry it is just sufficient for one of them to be satisfied. In other words the meaning of rivalry has more monopolistic than ‘perfect competition’ and more competitive than ‘oligopoly’.

There are two factors affording a kind of creative destruction to the existing innovative activity and industrial structure. One is competitive and the other is monopolistic. The former is mainly related to the price formation and the level of cost. We call it ‘price-type variable’- price of output, values of mark-up and firm’s cost function. The latter is mainly related to the efficiency of output and firm’s R&D action. We call it ‘non-price type variable’-productivity of output, products differentiation and firm’s share of output. Both variables are closely connected with each other. When every firm makes his good job in R&D, he is surely able to expand his profit. Schumpeter attached a special importance to these two variables. These variables often cause rivalry with both monopolistic forces and competitive forces. Schumpeter told us about the role of the competitive process servicing for one’s own economic development- In general it is not the owner of stage-coaches who builds railways. This fact not only puts the discontinuity which characterizes the process we want to describe in a special light, and creates so to speak still another kind of discontinuity, that is, replacement of main innovator, in addition to the one mentioned above, that is, displacement of the equilibrium state, but it also explains important features of the course of events. Especially in a competitive economy, in which new combinations mean the competitive elimination of the old, it explains on the one hand the process by which individuals and families rise and fall economically and socially and which is peculiar to this form of organization, as well as a whole series of other phenomena of business cycle[5]-.

Now the features of new concept ‘rivalry’ are as follows. The first is that price is not always distant from

5. Schumpeter (1934) pp.66–67.

marginal cost even in the long-run. So-called 'excessive competition' occurs often even among perfect competitive firms. This fact doesn't mean too little competition is too much monopoly. The second is that products differentiation exists definitely among all products. The third is that barriers of entry are dependent on not only their cost function but also strength of rivalry under many potential suppliers. Rivalry holds good to make clear discretion of non-price type variable. In rivalry the firm using a good chance of R&D can always seize a considerably high growth rate of demand. By this rivalry the firm can enjoy some merit by inducing the economy of scale or decreasing cost to scale. For instance a drastic price falling brings the firm cost falling through rivalry. Schumpeter used to refer to the railroad transportation as the services sector and the automobile as manufacturing sector. Again Schumpeter told us,- The capitalist achievement does not typically consist in providing more silk stockings for queens but in bringing them within the reach of factory girls in return for steadily decreasing amounts of effort[6]-.

Hereafter I would like to study a theory of cartel under rivalry. At first I'll look into rivalry with contract for production quotas in R&D action. In the Fig.2 downward sloping DD is firm's demand curve and upward sloping LMC and SMC are his long-run and short-run marginal cost curves. SAC is U-shaped and LAC is downward sloping in the wide range[7]. MR is marginal revenue curve. When the firm's market is in the monopolistic pressures, the intersection (p_1, q_1) of two curves MR and SMC is his profit maximizing point in the short run. In the cartel some of members, however, will dare to expand their profits, if possible. He can justify his quota with the same price. Now if he expand his capacity by 1/4 owing to R&D activity, he can afford to sell q_2 equating with 5/4 times as much as his present demand.

The cost of R&D must make LMC shift upward to LMC'. Though the long-run cost increase, his profit will expand by the shaded area. Stigler told us the cartel's life[8]- This is the story of cartels' lives. When this rivalry does not take the form of investment, some other form achieves the same result. Thus some states have had laws that no one could sell liquor, or gasoline, or some other commodity at less than a designated price or mark-up. A Firm will then seek additional patronage by advertising more, giving better service, or some such device. As a result, the cost curves shift upward, and in long-run equilibrium, the long run marginal cost eventually equals price-. Though there are several types of cartels in modern economic theory, we can guess the cartel which Schumpeter had imaged is the like of the above R&D action. This action mainly related to the efficiency of output and firm's R&D action. As stated above we called it 'non-price type variable'- productivity of output, products differentiation and firm's share of output. This operation comes to the result of the firm's timely creative innovation.

In real countries there are three sectors, namely, agricultural sector, manufacturing sector and services sector in their economies. No matter what the price formation of services sector may be, we can decide the dominant

---

6. Schumpeter (1943), p.67.
7. In this context, we'll just admit the condition of 'subadditivity' in the cost function concerned. This condition can't reject the upward sloping part.
8. Stigler (1966), p.235–236.

type of price economy by researching two kinds of ratios between agricultural sector and manufacturing sector from the microscopic view as stated above. The domination of the fixed price economy means that the price structure may be in rigidity, in other word, inflexibility in rivalry. Concretely saying the countries having lower ratio are able to enjoy larger output and profit from a good chance of R&D than those having higher ratio.

The Operation of Mark-up Principle

At first we will like to formulate cost function and mark-up principle. Our interest is whether it could be useful to understand an innovative activity in the industrial sector.

$$\mathrm{P} = \mathrm{LMC}\ (1 + m)$$
$$\mathrm{LMC} = \mathrm{F}\,(Av\,,\, Mv)$$
$$m = e\ /\ (e - s)$$

P and LMC are price and long-run marginal cost. Av and Mv mean the productivity of the agricultural sector and that of manufacturing sector as mentioned before. Three values m, e and s are 'mark-up', elasticity of demand and market share. The mark-up m is equal to the ratio of price to its marginal cost. And this cost function is almost subject to decreasing cost to scale through R&D action. LMC cost curves are under LAC cost curve by cost minimizing rule.

As Schumpeter also used to emphasize the importance of the rate of increase of total output, Schumpetarian economists tend to introduce productivity of factor of production in the cost function. Winter developed an evolutionary theory of technical change and simulations of expected level of innovative potential entry in the system he called Schumpeterian regimes. He told us on the postulates of his growth model[9], -The model employed is a Markov model of a single industry in which firms produce homogeneous product and in which cost reduction through productivity improvement is the major competitive weapon-. He also referred to the situations of relatively restrained competition, of a mark-up factor formula based on the 'Cournot's conjecture', which I don't dare to state explicitly here. From the sight of individual firm the rate of expansion of total output change will depend on the rate of price change. We can say that mark-up m changes with the level of market share and the net return of R&D concerned.

Semmler aptly told us on Schumpeter's theory[10],- First, competition is not limited to price or quantity adjustments. It is described as an evolutionary process, as a process of "creative destruction". The engines of this development are large firms. ...The incentives for developing these types of technical change originate in

9. See specially Winter (1991) pp.271–304. In his model mark-up formula is $m = \{e + (1 - s)\psi\}/\{e - s + (1 - s)\psi\}$. Here e and s mean elasticity of demand and market share, under the given 'Conjectural variation' factor ψ influenced by the elasticity of supply curve. By his simulation when s increases e decreases, in other words, demand becomes more unelastic with the restrained entry. In the case of $\psi = 0$, it is equal to the ordinary mark-up in the text.
10. Semmler (1991), pp.76–78.

transient surplus profit. ...The most important variable for this evolutionary process is the size of the firm... Second, Schumpeter stresses that competition is not necessarily an equilibrating force. When referring to the existence of large firms and their rivalry. ...Third, as in Marx, competition is an evolutionary process, one of rivalry between firms motivated by the search for surplus profit. He calls this surplus profit the transient "monopoly profit" of new processes and new products : "Thus it is true that there is or may be an element of genuine monopoly gain in those entrepreneurial profits which are the prizes offered by capitalist society to the successful innovator... in Schumpeter's view, the large firms are powerful engines of progress and "in particular of the long-run expansion of total output"-.

Technology itself doesn't always decrease cost, but firm's hard effort to adapt his technological innovation to R&D action. Hesitating a timely R&D action is severe for firm's own survival in chronic depression of the economy. In some manufacturing sectors, for example, semi-conductor, automobile and cellular phone the growth of demand is rather high. There used to be piecemeal falling price in the long-run with the rise of productivity of output. In rivalry the suppliers are apt to have fixed prices for selling, but to keep frequently their own market share by changing their selling prices. Even if the price can overshoot to the lowest level with almost null profit, there will be the force of recovery to a kind of pseudo stable equilibrium, in other words, 'the problem of indeterminateness' of final stable equilibrium. In rivalry there is indeterminateness, so to speak, a kind of the rigid disequilibrium regime. An existence itself of this mechanism forms an important non-barrier for entry. That is reason why the coordinating of market share is able to keep up surplus profit. As a result it leads to larger mark-up m through not being more elastic but being more inelastic demand.

Concluding Remarks

Let's bring this discussion to a conclusion. There is saying that 'look before you leap'. Though many economists look to be acquainted with the commonly accepted vision, I am wondering if it isn't time now to think over the appropriateness. The patterns of deciding price is dependent on the main types of price mechanism. We could consider the relative difference between the manufacturing sector and the agricultural sector in deciding the market price. I was interested all the more in the institutions and features of deciding and changing price in using the mark-up principle under the monopolistic pressures namely, in the situations we call rivalry. Concretely those are realized under the fixed, flexible and mixed price economies. We know the mark-up principle is closely related to the fixed price economy. Morishima's postulate is verified even in rivalry, with the recent new data including 'output and employment.' A prominent economist Schumpeter also told us that the clever firm is able to use his wisdom thoughtfully and effectively by creating, processing his own pricing method and innovational knowledge, namely, R&D for the survival.

References

1. Carlton, D. W. and J. M. Perloff, (1999), *Modern Industrial Organization*, Addison–Wesley.
2. Chamberlin, E. H., (1951), "The Impact of Recent Monopoly Theory on the Schumpeterian System", *Review of Economic Statistics*, Vol. 33, May, 1951, pp. 133–138.
3. Dahiya, S. B. (ed.), (1999), *The Current State of Economic Science*, Vol. IV, Spellbound Publications Pvt. Ltd.
4. Hayek, F. A., (1948), "The Use of Knowledge in Society and The Meaning of Competition", in *Individualism and Economic Order*, University of Chicago Press.
5. Heertje A. (ed.), (1981), *Schumpeter's Vision : Capitalism, Socialism and Democracy after 40 Years*, Holtsunders UK Ltd..
6. Hicks, J.R., (1965), *Capital and Growth*, Chap. 7, 8.
7. International Department : Bank of Japan, *Comparative Economic and Financial Statistics- Japan and Other Major Countries-*, 1983–1998.
8. Marshall, A., (1890), *Principles of Economics*, Book I, Chap. 3 and Book IV, Chap. 11–12 and 14, Macmillan and Co.
9. Mason, E. S., (1991), "Schumpeter on Monopoly and the Large Firm" in *J. A. Schumpeter : Critical Assessments*, Vol. IV, Routledge.
10. Martin, S., (2002), *Advanced Industrial Economics*, Chap. 3, Blackwell.
11. Morishima, M., (1984), *Economics of Country without Resources* (Japanese Version), Iwanami Shoten.
12. Nelson, R. R. and S. G. Winter, (1982) *An Evolutionary Theory of Economic Change*, Chap. 2 and Chap. 5, Belknap Press of Harvard University Press.
13. Blanchard, O., (1997), Macroeconomics, Chap. 22-24, Prentice-Hall, Inc.
14. Schumpeter, J. A., (1934), *The Theory of Economic Development-An Inquiry into Profits, Capital, Credit, Interest and Business Cycle-*, Chap 1, 2, 4 and 6, Oxford University Press.
15. Schumpeter, J. A., (1939), *Business Cycles*, Vol. I–II, McGraw-Hill Book Company.
16. Schumpeter, J. A., (1943), *Capitalism, Socialism and Democracy*, Part II, Unwin University Books.
17. Semmler, W., (1991), "Marx and Schumpeter on Competition, Transient Surplus Profit and Technical Change" in *J. A. Schumpeter : Critical Assessments*, Vol. IV, Routledge.
18. Stigler, G. J., (1966), *The Theory of Price*, Chap. 5 and Chap. 13, Macmillan Company.
19. Takemura, S., (1997), *Economic Analysis of Industry and Competition* (Japanese Version), Ochanomizu Shobo.
20. Takemura, S., (2000), "Implications of Competitive Power of Shumpeter's Theory" in *Economic Theory in the Light of Shumpeter's Scientific Heritage*, Vol. 2,, V. Orati and S. B. Dahiya (ed.), Spellbound Publications Ltd.
21. Takemura, S., (2003), "Toward an Internal Economic Analysis" in *The Futures of Economic Theory in 21th Century*, edited by K. Puttaswamaiah, Transactions Publishing Company.
22. Winter, S. G., (1991), "Schumpeterian Competition in Alternative Technological Regimes", in *J. A. Schumpeter : Critical Assessments*, Vol. IV, Routledge.

On Morishima's Postulate and Mark-up Principle

Shosuke Takemura

The view about a certain mixed structure with monopoly and competition is the typical subject. Morishima found that the patterns of deciding price are dependent on the main types of price mechanism. I'll test Morishima's postulate through use of the recent data. We can consider the relative difference between the manufacturing sector and the agricultural sector in deciding the market price. Especially I am interested in the institutions and features of deciding and changing price in using the mark-up principle under the monopolistic pressures namely, in the circumstances we call rivalry. Concretely those are realized under the fixed, flexible and mixed price economies. The mark-up principle is closely related to the ratio between two sectors in the fixed price economy. Schumpeter told us that the clever firm is able to use his wisdom thoughtfully and effectively by creating, processing his own pricing method and innovational knowledge in R&D.